

Running head: VARIATION IN CIVILIAN HEALTHCARE UTILIZATION

**VARIATION IN CIVILIAN HEALTHCARE UTILIZATION AMONG ACTIVE DUTY
ARMY SERVICE MEMBERS IN GERMANY**

A GRADUATE MANAGEMENT PROJECT IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR A MASTERS DEGREE IN HEALTHCARE ADMINISTRATION
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14. ABSTRACT A review of the literature indicated that both military and civilian medical systems struggle to provide the greatest health benefit at the lowest cost. This struggle is particularly challenging as a result of the military drawdown in Europe sincemedical resources have been reduced faster than the decrease inthe beneficiary population. As a result of this imbalance between resources and customers, many beneficiaries may seek their care outside the military system. A first step toward managing access and healthcare cost is an analysis of the historical utilization rates. This study examined the variation of civilian healthcare usage among the eleven health clinics within one medical facilitys geographic area in Europe. The data consisted of a two-year (Fiscal Year(FY) 97 - 98)retrospective review of the number of Army active duty claims and associated cost for civilian healthcare. An analysis of proportions from unordered categories yielded significant (a =0.01) variation in both years for both healthcare cost and claims. A paired sample t-test yielded significant (a = 0.05)differences in the means of both the claims and cost between FY97 and FY 98. Possible sources of this variance may be the wide dispersion of the clinics, deployment induced access difficulty and distance to tertiary care.					
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TABLE OF CONTENTS

ABSTRACT	3
CHAPTER 1. INTRODUCTION	4
Conditions Which Prompted the Study	4
Statement of the Problem	8
Literature Review	9
Purpose	12
CHAPTER 2. METHODS AND PROCEDURES	13
Data Collection and Analysis	14
Limitations of the Study	14
CHAPTER 3. RESULTS	15
CHAPTER 4. DISCUSSION	16
CHAPTER 5. CONCLUSION AND RECOMMENDATIONS	18
APPENDIX 1 - UTILIZATION AND COST RATES	19
REFERENCES	20

Abstract

A review of the literature indicated that both military and civilian medical systems struggle to provide the greatest health benefit at the lowest cost. This struggle is particularly challenging as a result of the military drawdown in Europe since medical resources have been reduced faster than the decrease in the beneficiary population. As a result of this imbalance between resources and customers, many beneficiaries may seek their care outside the military system. A first step toward managing access and healthcare cost is an analysis of the historical utilization rates. This study examined the variation of civilian healthcare usage among the eleven health clinics within one medical facility's geographic area in Europe. The data consisted of a two-year (Fiscal Year(FY) 97 - 98) retrospective review of the number of Army active duty claims and associated cost for civilian healthcare. An analysis of proportions from unordered categories yielded significant ($\alpha = 0.01$) variation in both years for both healthcare cost and claims. A paired sample t-test yielded significant ($\alpha = 0.05$) differences in the means of both the claims and cost between FY 97 and FY 98. Possible sources of this variance may be the wide dispersion of the clinics, deployment induced access difficulty and distance to tertiary care.

CHAPTER ONE

INTRODUCTION

CONDITIONS WHICH PROMPTED THE STUDY

The Military Health System (MHS) has changed tremendously as a result of the military-wide personnel drawdown. In the last decade, when overall force reductions amounted to approximately 30%, the number of medical personnel dropped by 15% and the number of military hospitals declined by 35% (Joseph, 1997). This drawdown is starkly illustrated in the current United States Army Europe (USAREUR) force structure. Before the end of the cold war, Germany was home to two Army Corps, four Divisions and an extensive array of combat support and combat service support forces. The medical support piece for this large, forward deployed force consisted of two general hospitals, nine community hospitals (commonly referred to as MEDDACs or Army Medical Department Activities) and a host of clinics in support of major troop populations under the command and control of the 7th Medical Command (7th MEDCOM). As recently as 1990, 7th MEDCOM inpatient beds totaled over 1100 (MEDCOM Strategic Plan, 1994).

Today, USAREUR consists of only one Corps, two partial Divisions and a much leaner infrastructure. The medical force has been reduced to one regional medical center, two military community hospitals and thirty outpatient clinics under the command and control of the U.S. Army Europe Regional Medical Command (ERMC). As USAREUR transitioned from concentrated to dispersed troop populations, so too did the medical system shift

from hospital-based care to outpatient-based primary care as evidenced by the current ERMIC bed total of 330.

Despite this precipitous reduction in medical infrastructure, the MHS mission remains twofold: "care and treatment for our troops wherever they need it, and a high quality, accessible health care benefit for our other beneficiaries that is also cost-effective" (Joseph, 1997). Currently however, the MHS cannot exclusively perform its dual mission without support from external providers. In Europe, host nation, civilian medical facilities and regional networks of preferred providers provide this external support.

An ERMIC program, titled Centrally Managed Allotment (CMA) - Medical Care and Patient Travel (ERMIC Policy 37-1-18(97)), governs medical care provided to active duty service members by a non-military source. This policy was designed to facilitate the accomplishment of the dual MHS mission by supplementing the care provided through military treatment facilities rather than replacing it. For example, an active duty soldier would be authorized to use a civilian source for emergency care when outside the catchment area of a supporting military medical facility. Catchment area refers to the geographic area surrounding each Military Treatment Facility (MTF) and represents the service area for that facility (TRICARE/CHAMPUS Policy, 1998). Within Europe, that area is delineated as the region within 30 minutes driving time for primary care and 2 hours time for specialty care (ERMIC Policy 37-1-18(97)). The intent of the

program is to insure access to care when military medical facilities are closed, too far away or lack the required medical specialty. Corollary to this intent is the MHS preference that the MTF serve as the primary care site with augmentation as required by civilian facilities. Additionally, there are certain restrictions and parameters that apply to the expenditure of CMA funds (ERMC Policy 37-1-18(97)):

- Coverage for civilian rendered care is restricted to active duty Army personnel only.
- Reimbursement for travel and allowances is limited to active duty Army patients and attendants in conjunction with inpatient care.
- Reimbursement for travel and allowances is limited to family members and necessary medical and non-medical attendants in conjunction with inpatient or outpatient care outside the Continental United States.
- Reimbursement for overseas travel and per diem is limited to active duty Army personnel assigned or attached to other than Army funded organizations.

In addition to these expenditure restrictions, there are procedural requirements that must also be followed:

- Immediate commanders of active duty Army personnel assigned to Army funded Geographically Separated Units (GSU) not assigned a Primary Care Manager (PCM) may:

(1) Approve use of civilian medical facilities for routine, non-elective medical/dental care after a determination

has been made that the total cost for the entire course of treatment will not exceed \$500. Immediate commanders are not authorized to approve payment of elective medical/dental care. They may approve use of civilian medical facilities for active duty obstetrical care.

(2) Request approval from ERMIC for use of civilian medical facilities for routine medical or dental care when the treatment episode will exceed \$500 or for elective care.

- Immediate commanders of active duty Army personnel assigned to Geographically Separated Units which are not funded by the Army (e.g. embassy staff) and not assigned a Primary Care Manager may:

(1) Approve use of civilian medical facilities for routine medical or dental care after a determination has been made that the total cost for the entire course of treatment will not exceed \$500. Immediate commanders are not authorized to approve payment of elective medical/dental care. They may approve use of civilian medical facilities for active duty obstetrical care.

(2) Request approval from ERMIC for use of civilian medical facilities for ordinary medical or dental care when the entire course of treatment will exceed \$500 or for elective care.

- Immediate commanders of active duty Army personnel assigned to Army funded units located within the catchment area of an MTF and units which have been assigned a PCM will ensure that all non-emergent medical/dental care is approved by the PCM

prior to the receipt of such care. They must report all active duty personnel who are admitted to civilian facilities to the PCM immediately upon receiving knowledge of the admission.

Oversight and management of the CMA is provided by the commanders of the three hospitals. Each is responsible for the care provided throughout the hospital's catchment area. In Fiscal Year 1998 (FY 98), the CMA program accounted for \$7.25 million across the ERMIC. Although the three catchment areas have comparably composed and sized beneficiary populations (A = 55,085; B = 56,212; and C = 52,576), there was wide variation among them in CMA expenditures. The three facilities share of the total CMA dollars for FY 98 amounted to 47%, 30%, and 23%, respectively. Based upon this variation at the macro level, a detailed examination of CMA utilization within one specific catchment area was warranted. This examination will determine if significant variation in the utilization of civilian healthcare also occurred among the various health clinics within the chosen catchment area. The catchment area selected for this study was area "A".

STATEMENT OF THE PROBLEM

Insight into the variation in utilization rates and cost of civilian provided healthcare is especially critical as both the Military Health System and the U.S. Army Europe Regional Medical Command wrestle with decisions on how best to allocate resources for the prevention and treatment of disease, injury and illness. As Dr. John Combes of the Hospital and Healthsystem Association

of Pennsylvania observed "We need to see where variations exist before we can figure out why they exist" (Weinstock, 1998). Simply stated, the research question was to determine if statistically significant variation existed in the utilization rates and associated costs of civilian healthcare for active duty Army personnel across the medical clinics within the selected catchment area. To provide greater clarity on healthcare use and costs, only civilian healthcare claims were examined, not associated travel costs. If variation is discovered, this information should guide decisions on resource allocation, marketing efforts and education for patients, providers and health benefits advisors alike.

LITERATURE REVIEW

Both cost containment and utilization management represent the essence of managed care. Military and civilian medical facilities struggle to accomplish both while delivering the greatest health benefit at the lowest cost. This struggle is not unlike that of other managed care plans that attempt to reign in rampant, inappropriate emergency department use and instead promote wellness and outpatient treatment. For the purpose of this study, variance in either utilization or cost is neither subjectively "good" nor "bad". It must however be identified and examined to determine its impact on resource allocation and strategic healthcare planning.

The hallmark study to examine emergency department use among military members was the Civilian Health and Medical Program of

Uniformed Services (CHAMPUS) Reform Initiative or CRI. CRI was a two state demonstration project in which beneficiaries were provided the choice of an indemnity plan, preferred provider organization-like plan, or a network-model Health Maintenance Organization plan (Kravitz et al., 1998). CRI also offered financial incentives for network provider use, lower copayments for ambulatory care and an extensive review and patient education program. Kravitz et al. reported large decreases in both the utilization (40% less) and costs (50% less) associated with emergency department use under CRI.

Additionally, the authors examined the severity of presenting illness to ensure that truly necessary care was not precluded. CRI again produced favorable results as evidenced by a 44% increase in high severity visits, while moderate severity and low severity visits dropped 14% and 27%, respectively. Steinbrook (1996) supported critical scrutiny of emergency department use since the majority (55.4%) of visits can be classified as nonurgent.

Unfortunately, the aforementioned healthcare cost avoidance did not necessarily translate into overall savings to the government due to additional administrative costs. Kravitz et al. admitted that even with these dramatic reductions in emergency department use and cost, "the impact on overall healthcare costs probably was limited."

Steinbrook (1996) stated that the purpose for examining emergency department utilization rates should be "to provide good

care rather than shift costs." He also identified the advantages of emergency department care for patients. These included physician availability, avoidance of obstacles to office-centered care and no lost work time for an evening or weekend visit. These advantages must be addressed when alternatives to civilian care are considered.

Even when alternative sources of care are adequately provided, some patients may still prefer to use the emergency department for unexpected illnesses (Baker et al., 1994). Baker et al. (1994) proposed that the proportion of care provided in an emergency setting may accurately reflect patient concerns with the accessibility and quality of their primary source of ambulatory care. Thus, if significant variation in civilian healthcare utilization is discovered in this study, the issues of access and quality may be the likely drivers of that variance. From this perspective, Kellerman (1994) proposed that the emergency department should not be viewed as contributing to the overall healthcare problem but as part of the solution, particularly when addressing access.

Moving beyond emergency department care, Greenfield et al. (1992) posit that many factors influence utilization including uncertainty, response to regulations, patient and societal expectations, patient need, method of payment and insurance coverage. The authors found large variations in the utilization of healthcare among four particular specialties (Family Practice, Internal Medicine, Endocrinology and Cardiology). Even after

controlling for patient need, the primary driver of healthcare use, variation in specialty utilization rates was still in evidence.

PURPOSE

The purpose of this study was to identify variation in utilization and costs and to make recommendations that would enhance management and control of Centrally Managed Allotment funds. The null hypothesis was that the utilization rates and cost would be equal among the medical clinics within the specified catchment area. The alternate hypothesis stated that the rates and cost would not be equal and that statistically significant variation would be present.

The objectives were as follows:

- Review CMA policies and guidance.
- Review historical utilization rates and associated cost of civilian care.
- Interview the leadership at the MEDDAC for the catchment area.
- Evaluate data for variation and trends.
- Evaluate data to determine best business practices.
- Assess findings for possible application throughout ERM.

CHAPTER TWO

METHOD AND PROCEDURES

DATA COLLECTION AND ANALYSIS

The primary instrument for the collection of data was a two year (FY 97 - 98) retrospective review of Army active duty claims for civilian healthcare. These claims are processed through the Wisconsin Physician Service (WPS) for payment and then reported to the ERMC Managed Care office for oversight.

The data was filtered through a data query to pull only those claims associated with one of the eleven clinics in the specified catchment area. Both the number of visits and the amount reimbursed was collected to form the research database. This data was then converted into a utilization rate per thousand beneficiaries and cost rate per beneficiary based upon enrollment numbers at each clinic (Appendix 1). Finally, an analysis of proportions (Altman, 1991) from unordered categories was conducted to determine if significant ($\alpha = 0.01$) differences in variation existed within the catchment area over the two year period. The analysis of proportions yielded a Chi-square critical value for rejection of the null hypothesis.

The methods and procedures used support the validity and reliability of this study. The data elements adequately represented the population of relevant items under study (content validity). The data also adequately estimated the current utilization behavior (criterion-related validity). Finally, the data was adequately reliable in consistency of measurement.

However, due to the lag in processing time, the most current claims data may not contain all existing claims but only those which have been completely processed by WPS.

LIMITATIONS OF THE STUDY

As mentioned, the data may not reliably represent the most current utilization rates. Nor was the data available for the three-year period initially programmed for this study. Additionally, the data does not contain the time that a patient presented to the civilian facility. With the exception of obstetrical patients routinely referred to a civilian facility, the operational assumption was that all other patients presented due to an emergency or lack of access (e.g. closed, specialty not provided) at the local military clinic. A final limitation of the study is that it does not address health outcomes. Although one clinic's utilization rates may be statistically higher than all the others, if the population health could be factored in, the results may have shown that this outlier produced the greatest health benefit per unit of cost. Ethical rights of the patients were protected since individual patient information remained confidential and only aggregate data by clinic was presented.

CHAPTER THREE

RESULTS

An analysis of proportions (Altman, 1991) from unordered categories yielded significant differences in variation ($\alpha = 0.01$) in both the claims rate and cost for each of the years under examination (FY 98 Claims: $X^2 = 7376.97$, $df = 10$, critical value = 23.2; FY 97 Claims: $X^2 = 1278.82$; FY 98 Cost: $X^2 = 18,960.71$; and FY 97 Cost: $X^2 = 785.84$). The null hypothesis is therefore rejected.

Additionally, a thorough analysis was conducted of the means of the claims and cost rates between FY 97 and FY 98. The statistical measure used was the paired sample t-test and it too yielded statistical significance ($\alpha = 0.05$) between the year groups (FY 97 - 98 Claims: $t = 2.78$, $df = 10$, critical value = 1.182; FY 97 - 98 Cost: $t = 2.48$). Descriptive statistics also indicate an exceptional increase in both the number of claims (tenfold increase) and cost of claims (twelvefold increase) from FY 97 to FY 98.

These findings show that there is significant variation in the utilization and cost rates for civilian healthcare within the specified catchment area. The identification of this variation is the first step in determining the best business practices for the command and may assist in strategic decisions on future resource allocation.

CHAPTER FOUR

DISCUSSION

The results of this project provide the first analytical step in the management of healthcare. The identification of significant variance provides an opportunity to review the healthcare delivery process for possible improvement and to attempt to understand the root cause of the variation in civilian healthcare usage. To paraphrase Dr. Combes, now that variation has been shown to exist, the next step is to determine why it exists.

Several potential sources for the variance arose in discussions with the leadership of the MEDDAC. The first source is the wide dispersion of the health clinics. The eleven clinics are located in a catchment area that encompasses 60,000 square miles. Additionally, drive time from several of the clinics to the MEDDAC requires two plus hours under normal road conditions. Bad weather, poor road conditions and congestion can easily extend this drive time. Not surprisingly, the clinic (Clinic 2) with the greatest distance from the MEDDAC experienced the highest claims rate and cost per beneficiary.

Similarly, the drive time to the tertiary care facility may be another source of variation. The military tertiary treatment facility is located another three hours away from the parent MEDDAC. Patients faced with a round trip drive time of ten or more hours would likely opt to use civilian care over the military system.

The final source of variance may be the result of access difficulty due to deployment. A significant portion of the MEDDAC is assigned to a Combat Support Hospital with the mission to deploy on short notice in support of USAREUR requirements. During deployment, the MEDDAC receives backfill from both Europe and the States. Despite this planned mission handoff, temporary understaffing and staff orientation can still disrupt patient care. The most recent deployment occurred from April to October 1998 and may help explain the significant increase in claims and cost between FY 97 and FY 98.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

The discovery of variation in civilian healthcare utilization among active duty Army personnel in Germany supports further study to examine the cause of this variance and to seek to control it. As the Military Health System becomes increasingly resource constrained, an understanding of the treatment seeking behavior of our beneficiaries becomes more critical. Further study could also enhance the cost containment efforts and improve utilization management within the catchment area. A more detailed analysis at the clinic level could determine and promote the best business practices of those clinics that more carefully husband treatment resources while simultaneously providing access and quality care. Finally, any future study should also attempt to measure both patient satisfaction and health levels to more accurately assess the cost and benefits of civilian over military healthcare.

Variation in Civilian Healthcare Utilization 19

Appendix 1

Utilization & Cost Rates

	Clinic	AD Army Population	Civilian Claims	Claims Rate (x1000)	Total CMA Cost	Cost per Beneficiary
FY98	1	1252	688	549.52	\$247,016	\$197.30
	2	209	401	1918.66	\$172,892	\$827.24
	3	3153	749	237.55	\$235,394	\$74.66
	4	977	5	5.12	\$1,604	\$1.64
	5	1117	634	567.59	\$249,418	\$223.29
	6	1401	561	400.43	\$309,449	\$220.88
	7	879	364	414.11	\$131,412	\$149.50
	8	2301	994	431.99	\$401,769	\$174.61
	9	3165	40	12.64	\$13,027	\$4.12
	10	4746	583	122.84	\$166,757	\$35.14
	11	3254	292	89.74	\$102,319	\$31.44
Total		22454	5311		\$2,031,056	\$1,939.81
FY97	1	894	103	115.21	\$24,129	\$26.99
	2	203	62	305.42	\$12,358	\$60.88
	3	3165	67	21.17	\$21,578	\$6.82
	4	1023	2	1.96	\$454	\$0.44
	5	1192	37	31.04	\$10,231	\$8.58
	6	1364	67	49.12	\$26,444	\$19.39
	7	914	36	39.39	\$22,765	\$24.91
	8	2153	76	35.30	\$32,593	\$15.14
	9	3239	7	2.16	\$2,533	\$0.78
	10	4705	39	8.29	\$6,793	\$1.44
	11	2987	15	5.02	\$3,098	\$1.04
Total		21839	511		\$162,976	\$166.41

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